



UNEP/GEF PROJECT

Russian Federation – Support to the National Programme of Action for the Protection of the Arctic Marine Environment

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TERMS OF REFERENCE

FOR

Preparation of Regional Pre-Investment Studies

A. Background

1. This Terms of Reference (TOR) applies to a consulting assignment covering the preparation of Pre-Investment Studies (PINS) on selected environmental investment proposals to be developed as part of the UNEP/GEF Project: "Russian Federation - Support to the National Programme of Action for the Protection of the Arctic Marine Environment" (hereinafter designated as NPA-Arctic Project). The project's overall global environment objective is to protect the global marine environment in which the Arctic plays a pivotal role. The more specific objective of the Project is to develop and establish a sustainable framework to reduce environmental degradation of the Russian Arctic from land-based activities on a systemic basis by implementation of a Strategic Action Program (SAP) The SAP is being developed to comply with obligations of the Russian Federation under international conventions and agreements taking into account decisions and programmes of the Arctic Council. As such, it would create conditions, which will allow for capital investments to flow in the Russian Arctic in order to ensure long term protection of coastal and marine environment of the Arctic and to address main root causes of trans-boundary pollution in the Russian Arctic.

2. The project is implemented by UNEP and executed by the Ministry of Economic Development and Trade of the Russian Federation (Mineconomrazvitiya of Russia). The Project Office will undertake procurement and contracting on behalf of UNEP and Mineconomrazvitiya of Russia. The Project is also supported by bi-lateral donor participation from the governments of Canada, the United States, Italy, and Iceland. Advisory Committee on Protection of the Sea (ACOPS) and Nordic Environmental Finance Corporation (NEFCO) are Partner Agencies.

3. The NPA-Arctic Project consists of four components. These are:
- *Component 1: Strategic Action Programme (SAP)* – This component involves the preparation and adoption of a formal SAP based on GEF International Waters best practice guidelines with the objective of providing a systematic plan and program to address major sources of land based and coastal area pollution affecting the Russian Arctic within the framework of the Russia’s overall development plans for the Arctic region, the activities that will be involved in implementation of such development, and the country’s global environmental commitments.
 - *Component 2: Pre-Investment Studies (PINS)* – This component covers the selection and completion of up to 15 PINS that will address the most frequent and serious cases of land based and coastal area pollution sources impacting the Arctic region. PINS should result in an optimal set of proposals for investment in the Russian Arctic, where input of money for their implementation will be most effective in economic, ecological, social and political sense and support business decision making and financing.
 - *Component 3. Environmental Protection System (EPS) Development* – This component covers the development and implementation of an Environmental Protection System (EPS) applicable to the Arctic environment and its sustainable development, protection, embodying legislative, administrative, institutional and technical capacity improvements consistent with the SAP; and
 - *Component 4: Demonstrations Projects* – This component will support three demonstration projects involving i) preservation of indigenous people’s tradition lifestyle in association with development; ii) oil contamination remediation using marine alga; and iii) environmental remediation of decommissioned military bases.

4. The input for Component 2 on PINS preparation has been “hot spot” identification, screening and prioritization. Section H below provides a list of documentation related to this process and lists its outcomes.

5. Preparatory work under Component 2 resulted in the list of 100 “hot spots” of which 30 most critical “hot spots” that have been separated for the purpose of this TOR into three regions of the Russian Arctic on land (Western (incl. Murmansk region and Franz-Joseph Land, Central incl. Arkhangelsk region, and Eastern) as well as for marine “hot spots”. A prioritized list of “hot spots” has been prepared and, where feasible, specific investments have been proposed by local private and public sector project developers/owners. Based on this work, a consolidated screening process has been conducted by the NPA-Arctic Project Office after consultations with regional authorities resulting in the selection of 5-7 specific investment projects within each of these regions. The goal of the assignment is

the development of PINS for investment projects associated with priority hot spots.

6. PINS is defined as a consolidated document containing sufficient physical definition, technical and implementation risk evaluation, environmental and social assessment, financial and economic analysis, and business planning information that would allow a public or private sector developer or proponent of an investment project to make the necessary business or public policy decision to proceed with such an investment and to present it for financing to one or more possible sources of financing. The investment projects considered for PINS preparation are characteristically capital investments that will reduce or eliminate sources of land-based or coastal area pollution, either from past, present or potential development activities. Three major categories of potential investment projects to be selected for PINS will include (i) industrial pollution abatement investments (i.e. facilities upgrading or replacement for purposes of modernization in order to reduce and prevent pollution incl. use of cleaner production technology), (ii) clean up of past environmental liabilities with actual or significant future major potential to add to Arctic pollution loads, and (iii) new or upgraded environmental management infrastructure (i.e. waste management, waste water treatment). Investments that contribute to biodiversity and the sustainability of habitat and traditional resource utilization by indigenous people may also be included provided they have a defined proponent and reasonable commercial or public policy based *investment* rationale. Investments involving research and assessment, monitoring, or institutional capacity building would not be considered.

7. Potential sources of national financing and co-financing in addition to direct equity and commercial borrowing include the following financing mechanisms¹:

- National Federal Targeted Programs
- Regional Targeted Programs
- Agency Targeted Programs
- Federal Directed Investment Program
- National Projects
- Regional Funds for Inter-budgetary Transfer
- Budget Allocations for Environmental Protection and Natural Resource Management
- Use of Payments for Environmental Pollution and Natural Resources Exploitation
- Public Private Partnerships

¹ Averchenkov A.A. "Review and Analysis of National Financial Sources, Instruments, and Mechanisms for Implementation of SAP-Arctic", Moscow, May 2007

- Taxation Mechanisms
- Kyoto Mechanisms.

8. **Attachment 1** provides an assessment of the existing Russian national financing sources. The most prospective sources are likely to be the existing Federal Targeted Programs (e.g. World Ocean Federal Target Program), Regional Targeted Programs (e.g. Environmental Protection and Health and Environmental Safety in Murmansk Oblast for 2006-2008), a Federal Directed Investment Program, Regional Funds for Inter-budgetary Transfer, and various forms of Private Public Partnerships supported by concession agreements, investment and venture funds, taxation mechanisms and Kyoto mechanisms.

9. Various international financing sources that could serve as financing and co-financing including the following:

- *Loans from International Financial Institutions (IFIs):* The principal IFIs that could participate in investment project financing are the World Bank Group, specifically the International Bank for Reconstruction and Development (IBRD) and International Finance Corporation (IFC), and the European Bank for Reconstruction and Development (EBRD). Potentially applicable loan operations that IBRD and IFC have in place or are developing in Russia include the National Pollution Abatement Facility (NPAF)² which finances a variety of commercially industrial pollution abatement investment projects, the joint IBRD/IFC Sub-National Development Program for creditworthy regional and local governments for environmental infrastructure³, and a developing national lending operation to finance clean up of Past Environmental Liabilities (PEL). IBRD also provides carbon finance programs allowing investors to market eligible carbon credits. In addition, IFC may undertake large private sector enterprise financing through loans, equity participation and debt guarantee facilities⁴. EBRD undertakes similar financing for both municipal communal infrastructure and private sector industrial modernization.
- *Grant and Soft Loan Financing from International and Bi-lateral Programs:* A number of donor countries, individually and collectively offer grant funds for study and investment. Those specifically targeting Arctic environmental investment are programs offered by the Nordic Investment Bank⁵, and Nordic Environmental Finance Corporation⁶. Grant funding linked to European Union program as well as potentially from IFIs such as EBRD and the World Bank Group are available through the Northern Dimension Program⁷. GEF financing may also apply to projects where a linkage to

² http://www.npaf.ru/index_eng.php

³ <http://www.ifc.org/ifcext/municipalfund.nsf/Content/AboutUs>

⁴ http://www.ifc.org/ifcext/eca.nsf/Content/Russia_Home

⁵ <http://www.nib.int/en/index.html>

⁶ <http://www.nefco.fi/>

⁷ http://ec.europa.eu/external_relations/north_dim/ndep/index.htm

global environmental convention or identified global environmental benefits exists.

B. Objectives

10. The objective of this assignment is to prepare PINS documentation on selected by the NPA-Arctic Project investment proposals in such a form that can be used by project developers/owners for investment decision-making. PINS will address already-identified priority environmental compromises in the Arctic. As so many of the compromises and threats have transboundary implications, it is anticipated that major international support can be obtained from the Arctic States, either under bilateral arrangements or through concerted action under the auspices of the Arctic Council.

11. Recognizing that the number and severity of environmental problems in the Arctic is enormous and no one set of investment projects can lead to the elimination of several or even one critical hot-spot, the emphasis of this assignment is on the optimal set of (i) most urgent investment needs as identified by regional administrations and on those that have (ii) a high demonstration/replication potential. PINS were proposed for 30 most critical environmental hot-spots in the Russian Arctic and fall into the three main categories: 1. past environmental liability; 2. waste water treatment/ solid waste processing; and 3. industrial investment projects. It does not prevent consultant from proposing PINS in other project categories listed in the Attachment 5, but the emphasis of the assignment will be in these three project categories.

C. Scope of Work

General

12. The overall scope of work applicable to the Consultant's assignment is to prepare on average 5 PINS (3-7 dependent on the number of priority "hot spots" in each region) associated with environmental "hot spots" each in the western, central and eastern regions of the Russian Arctic. The targeted 30 "hot spots" are listed in **Attachment 2** and their brief description is given in **Attachment 3**. **Attachment 4** contains a preliminary list of lots preliminary agreed with local authorities along with references and contacts that will provide the starting point for PINS preparation. The Consultant may wish to suggest other than proposed PINS given that they reflect upon requirements of the TOR. The PINS delivered by the Consultant shall be in the form of a consolidated document containing sufficient technical definition, technical and implementation risk evaluation, environmental and social assessment, economic analysis and business planning information that would allow the developer of the investment project to make the necessary business decision to proceed with such an investment and to present it for financing to one or more possible external sources of financing.

13. The specific format of the PINS documentation prepared will be proposed by the Consultant upon initiation of the assignment and be subject to the agreement of the NPA-Arctic Project Manager and specific investment project

developer/owner. In this regard, the Consultant should recognize that the format and information presented is required to be suitable for adaptation or information transfer to proposal documentation required by potential sources of financing that will or are likely to be pursued. As noted above, these financing sources may range from various Russian public and private sector sources through to international funding sources, all of which may have specific information and formatting requirements. The Consultant is expected to be familiar with the practices and requirements of these financing sources upon initiating the work. Work undertaken during the PDF-B stage of the NPA-Arctic Project provides general guidance on the overall practices, steps and types of information required in Russia for the preparation of investment projects⁸.

Selection of PINS beyond proposed in Attachment 4

14. If Consultant on a basis of consultations with regional authorities decides to propose a specific investment project for PINS preparation that was not included in Attachment 4, all or some of the basic criteria for selection of such PINS should be met:

- Linkage to a priority source of Arctic pollution in one of the critical hot-spots (Attachment 2), and having the potential to provide a meaningful and measurable reduction of major environmental problems (Attachment 3);
- Having a clearly defined project developer/owner prepared to commit to its further development and having capacity to do so;
- Sufficient preparation work completed such that its physical and technical scope, approximate costs, social and environmental impacts, and physical boundaries can be defined, with attractiveness increasing with the amount of preparation work done;
- Reasonable level of inherent technical risks as measured by maturity of technology applied, amount of design investigation undertaken, and available technical capacity to support its implementation and sustainable operation;
- Reasonable level of financial, regulatory, and implementation risks;
- Having a sound legal basis for further preparation and implementation;
- Official sanction as a priority from authorities at the federal, regional and/or local levels;
- Potential to attract financing from several identifiable and feasible sources;

⁸ A. G. Terekhov, Y. L. Maksimenko, M. I. Kotovrasova, G. A. Mashanova, S. N. Khursevich and A.A. Khusainova, "Manual on the Preparation of Re-Investment Studies and analysis of Existing Practices on Conducting Pre-Investment Studies in the Russian Federation, ACOPs, Moscow 2000. http://www.acops.org/documentation_gef_pdf-b.htm

- Degree to which the project promotes cleaner production, energy efficiency and/or responsible environmental behaviour;
- Potential linkage to global environmental priorities, particularly applicability to climate change issues and the Kyoto Protocol 2008-2012 carbon trading window.

Based on these criteria proposals should be delivered to the Project Office no later than in two months after contracting.

PINS Preparation

15. This assignment is related to one of the above regions (western Arctic – Kola peninsula and Frantz-Josef archipelago, central Arctic -Arkhangelsk region, Republic of Komi, Nenets AO and Yamalo-Nenets AO and eastern Arctic – north of Krasnoyarsk krai, Republic of Sakha (Yakutiya) and Chukchi AO). For each specific investment project selected by the NPA Arctic Project (Attachment 4) and/or proposed by Consultant and approved by the NPA-Arctic Project Office in consultations with implementing and executing agencies, Consultant will develop a full PINS. The content will include but not necessarily be limited to the information defined in the following.

16. *Project Developer (Owner) Profile and Background:* A prerequisite for development of a PINS is that the investment project proposed have a clearly defined project developer/owner who is sponsoring it, would lead the acquisition of financing, and ultimately would be responsible for its implementation, either directly or through another legal entity that the project developer/owner may would designate and stand behind. Depending on the nature of the proposed project, the project developer/owner may include: i) private or public sector commercial enterprises involved in industrial production, resource extraction or service activities; ii) private or public sector enterprises operating communal services provided to the public sector on a contracted or concession basis; and iii) state agencies mandated to develop and implement specific environmental initiatives involving the proposed investment project; and iv) various legally constituted combinations of these entities. The Consultant will develop a profile of the project developer/owner in sufficient detail to allow assessment of that entity's experience, capacity, and commitment in this role and which would provide a potential source of financing sufficient information to undertake the necessary diligence required to qualify the entity as a recipient of the financing. More specifically, the information developed for this profile where applicable to the specific type of entity will include:

- Relevant history and background of project developer/owner;
- Full name of entity, location (s) of operation, legal and postal address, telephone/fax/electronic coordinates, identity of directors and/or principal management;

- Legal structure, ownership and affiliations;
- Main licences and permits confirming the project developer/owner's right to conduct its activities, including the right to possess land where applicable;
- Description of the scope of the project developer/owner's business or state agencies activities and as applicable its physical assets;
- Organizational structure inclusive of environmental management capacity, and technical support capability (directly or through affiliated technical or research organizations);
- Production capacities and capacity utilization;
- Strategic position in its business sector within Russia, and internationally where appropriate for commercial enterprises;
- Mandate as defined under legislation or Government policy for state agencies;
- Age, investment history, and general technological status of the present physical plant;
- Nature and sources of raw material and semi-finished goods supply;
- Principal current markets and market opportunities for products, including a breakdown of sales by destination;
- Historical ability to finance investments from internal and external sources including as applicable credit history;
- Identifiable or potential environmental issues associated with its overall current operation and potential future general business activities, including environmental permits, regulatory compliance history and environmental fee payments where applicable.
- Identifiable or potential workplace health and safety issues associated with its overall current operation and potential future general business activities including available safety data and compliance record as applicable;
- Relationships with local communities in which they operate, public consultation practices and any potential local social issues;
- Relevant financial performance and trend information for private and state commercial enterprises as may be applicable including:
 - Balance sheets and income statements for up to the five previous years
 - Quarterly financial performance information for the current year;
 - Available data and qualitative information related to the enterprise's production cost structure, inventory, payables and receivables;

- Production volumes, product pricing information and sales revenues for up to the previous five years by principle product category or type;
 - Current prices of major inputs and identification of significant pricing trends and supply security issues;
 - Taxation regime, issues and status of any tax arrears;
 - Debt structure and borrowing history;
 - Plans for new capital investment;
 - History of worker layoffs, unpaid salaries, and reduced work hours in the enterprises; and;
 - Any subsidies from the state budget to the enterprise;
 - Records of assessments and payments of pollution fees and fines.
- Financial viability assessment for private and state commercial enterprises covering identification of commercial risks associated with the business and apparent financial risks that are identified through analysis of balance sheets and income statements, calculation of indicative financial ratios, and analysis of operational cash flow and working capital availability;
 - History of budget support financing and what is committed in the future for state agencies.
 - Full name, position, telephone/fax/electronic coordinates the contact person designated as responsible the proposed investment project.

17. *Proposed Investment Project Description:* The Consultant will prepare a detailed physical description of the proposed investment project inclusive of a statement of the project's purpose and objectives. This description should fully define the project's: i) physical scope, ii) geographical location inclusive of boundaries, adjacent land use and natural features; iii) scale in terms of capacities and land requirements; iv) principle technical components and processes; v) required support infrastructure and utility supply; vi) interconnection with other facilities or physical assets; and vii) direct labor required for its operation. As applicable, this description shall be supported as by maps, layout drawings, schematic diagrams showing processes and mass balances applicable to inputs and outputs.

18. The technologies utilized should be elaborated with respect to: i) the basic principles on which they operate and are applied; ii) status of development and demonstration, iii) commercial availability (inclusive of references to where they are applied in comparable applications and scale, and performance experience); and iv) performance (economic, environmental and technical) comparison with alternative technologies available internationally and in Russia.

19. In developing the above description, the Consultant should define, as applicable, the current level of project preparation in terms of design, field survey,

regulatory approvals, acquisition of land and technology, and current allocation of human and financial resources. This should also include identification of key outstanding steps and activities such as design, field survey, environmental assessment, technology and land acquisition, and any other critical activities required to commit to project financing and implementation.

20. An itemized capital cost estimate for the proposed investment project should be documented including contributing investments already made (where applicable), the specific cost components (works, equipment, and services) required for the project, the unit and total costs assigned to them, the basis on which the cost estimates were derived, and the level of contingency assigned or which in the Consultant's judgment should be assigned based on level of technical preparation completed and cost risks that may be associated with implementation.

21. An operating cost estimates should be provided for the project with differentiation between various cost components (i.e. labor, utilities, consumables, etc). For projects involving upgrading of existing operating facilities this should also included a comparison in operating costs before and after implementation.

22. *Environmental and Social Assessment:* As the basis for the environmental justification of the proposed investment project, the Consultant will fully describe the current environmental conditions that apply in the project area including the natural setting and environmental resources involved (i.e. the current environmental base line) including the specific environmental conditions that the investment project is intended to address. As part of this, the significance of these environmental conditions and impacts should be assessed in both a local context, including actual and potential impacts on public health, in the overall context of Arctic pollution, and as applicable global environmental issues. The Consultant should also describe the current social setting in which the proposed will be undertaken inclusive of identification of any important public interfaces and stakeholders.

23. The Consultant will undertake an environmental assessment of the proposed project both in the context of any incremental impacts or risks that its implementation may have, and the degree to which it will improve the environmental conditions defined in the baseline above. This will include an evaluation of the proposed project's environmental performance relative to factors such as emission and waste reduction, resource recovery and reuse effectiveness, energy and water conservation. A clear demonstration of the project's environmental benefits should be provided in relation to reduction in overall pollution load, the priority that specific pollutant reductions have in terms of local environmental and public health impact, and, where applicable, global environmental impacts. Schematic diagrams should be used to illustrate this where practical such as would be the case for new or upgraded industrial or municipal facilities. These should provide a comparison between existing and proposed operations in terms of estimated direct releases in the form of air

emissions, water discharges and solid waste generation. As applicable, alternatives to the proposed investment project should be assessed and the selection of that proposed justified in relation to them.

24. The Consultant will identify and assess any social issues that are either addressed or raised by the implementation of the proposed investment project. This should include impacts or benefits related to employment and community development, as well as any workplace health and safety issues that the project may raise. It should also address the level of awareness on the part of the public and local population concerning its implementation and the public consultation steps taken or proposed to enhance this awareness.

25. *Investment Project Implementation Status and Arrangements:* The Consultant will describe the current status of the investment project's development and document the project implementation plan including schedule, organizational arrangements, key decision points, actions to address outstanding preparation work and regulatory approvals, and project management resources required. Additionally the Consultant will evaluate the enterprise's implementation capacity and resources in undertaking the project including design, procurement and general project management and operational capabilities.

26. *Project Financial Viability Evaluation:* The consultant will undertake an evaluation of business variables, economic viability factors and financing prospects specific to the proposed investment project as may be applicable. This will address, as applicable, the following:

- Estimates of incremental revenues and/or cost savings derived from the project, including those that may be result from operating cost savings, increased productivity, sale of new products resulting from the project's implementation, and reductions in environmental fee payments;
- Availability and pricing of project specific raw materials, energy, and other inputs;
- Status of markets, pricing, sales commitments, transportation arrangements for recovered products or services (where applicable);
- Project specific market risk assessment (where applicable);
- Calculation of rate of return on investment and its sensitivity to key variables that may apply such as exchange rates, pricing, sales volumes, capital and operating costs;
- Estimate potential benefits to the state budget or alternatively subsidies required from public sources; and
- Proposed financing plan including project developer owner contributions and potential external sources of financing that are considered, including an assessment of the potential suitability of these sources.

27. *Documentation, Presentation and Dissemination Requirements:* The Consultant is expected to fully document PINS including retention of consolidated working papers, analytical material, photography, source documents and references for transmittal to the NPA-Arctic Project office. Upon completion of each phase and individual PINS the results should be assembled as draft report, be potentially summarized in a presentation format agreed with the NPA-Arctic Project office and in a final report upon receipt of comments. The NPA-Arctic Project office intends to undertake a dissemination program for the PINS targeting potent financing sources, which the Consultant will be expected to support through development of presentation materials, hard copy investment project summaries, and participation in an initial round table workshop involving potential financing sources. In preparing all reports, presentation and dissemination materials, the Consultant is expected to do this in both the Russian and English languages.

D. Implementation Arrangements

28. The overall Consultant assignment will supervised by the NPA-Arctic Project office and specifically the Project Manager acting in consultation with Executing and Implementing Agencies. As required, the NPA-Arctic Project office may coordinate contact with the PINS Working Group and relevant Russian experts including those involved in initial hot spot identification and characterization work. Following initial facilitation by the NPA-Arctic Project office, the Consultant will be responsible for direct interactions with local authorities and the project developers/owners of proposed investment projects.

29. In undertaking this work, Consultant is advised of the following:

- The majority of input documentation provided to the Consultant will be available only in the Russian language;
- The amount and quality of information provided to the Consultant may be variable;
- Provision of local interpretation, translation, communications, logistics support and travel will be the Consultant's responsibility;
- Venues for presentation and dissemination events will be provided by the NPA-Arctic Project office, local authorities or project developers/owners. Participation costs including travel costs will be the responsibility of participating enterprises and agencies. The Consultant will be responsible for presentation materials and equipment, translation/interpretation services, and participation costs of its staff and associates.

E. Assignment Schedule and Reporting

30. The assignment is anticipated to begin in February, 2008 and not exceed 7 months period. While the detailed scheduling of the assignment will be finalized

with the contracted Consultant during contract negotiations and mobilization period, the following provides guidance on anticipated timelines to the end of various months during which the assignment is implemented:

- Month 1-3: Completion of mobilization, initial PINS screening, site visits and consultations with potential owners. Possible proposals of additional investment projects to the Project Office.
- Month 2-5: Preparation of PINS for pre-selected specific investment projects, including documentation and presentation of draft PINS.
- Month 5-6: Presentation of draft PINS on "as ready" basis and finalization of PINS.
- Month 6-7: Submission and presentation of consolidated final report and participation of a financing round table workshop. PINS follow-up taking into account regional comments.

F. Consultant Qualifications

32. The Consultant selected for this assignment will offer a wide range of technical, environmental, and business expertise and experience covering i) dealing with Arctic pollution issues, particularly Russian and international initiatives active in this area; ii) financial viability assessments of industrial enterprises, particularly in the Former Soviet Union incl. Russia; iii) technical, environmental and economic evaluation of investment projects related to pollution prevention, cleaner production technology, resource recovery; pollution prevention, environmental management infrastructure, and site clean up; iv) familiarity with requirements and procedures of possible Russian and international financing sources and direct experience with investment project financing practice used by such organizations related to project appraisal, processing, procurement and implementation. Specific experience in these areas applicable to the industrial and utility sectors characteristic of the Russian Arctic is desirable. These sectors include communal facilities (power generation, waste water treatment, solid and hazardous waste management, marine infrastructure), coal mining, non-ferrous metallurgy, machinery manufacturing, oil and gas production, and ship building and maintenance. Project management capability experienced in directing an integrated team of local and foreign experts will be an essential requirement of this assignment. In this regard, the international firms without local capability should consider partnering with a local organization that can provide local knowledge, office, logistics and language support capability. Similarly, Russian firms should ensure that they include international experience and/or partners that provide appropriate technical and business expertise and ensure international financing sources can be attracted.

H. Reference Documentation

33. "Hot spot" identification, screening and prioritization work has been undertaken during the preparatory stage of this component of the NPA-Arctic Project. Thirty most critical hot spots have been identified and listed in Attachment 2 followed by brief descriptions of these hot spots in Attachment 3.

34. The Report on Updating of the environmental "hot spot" list in the Russian part of the Barents Region and proposals on environmentally sound investment projects has been carried out by a joint AMAP/Russian Expert Group (EG), with active participation of local environmental protection authorities and experts, and headed by the Secretariat of the Arctic Monitoring and Assessment Programme (AMAP). The project covers the following administrative territories of the Russian Federation that belong to the Barents region: Republic of Karelia, Republic of Komi, Murmansk Oblast, Arkhangelsk Oblast, Nenets Autonomous Okrug. Based on data and information obtained, the Expert Group has selected the most urgent areas of concern related to pollution sources, and outlined them as an updated "hot spot" list. This list consists of 42 "hot spots", and proposals for 52 investment project aimed on mitigation of environmental impacts from these "hot spots". The NEFCO/AMAP report "Updating of the Environmental "Hot Spots" List in the Russian Part of the Barents Region: Proposals for Environmentally Sound Investment Projects Project Office.

35. Government's reports on the State of Environment in the Russian regions (oblasts and okrugs), and annual reports of Roshydromet on the state of atmospheric air, surface and marine waters, as well as the data held by the Russian regional environmental bodies and data collected by the NPA-Arctic Project Office during the diagnostic analysis of current state of environment in the Russian Arctic and SAP preparation and reports various federal government agencies and regional administrations are available at the request from the Project Office.

Attachment 1

General Description of Possible Financial Instruments and Mechanisms for the Support of the SAP-Arctic and Assessment of their Potential⁹

	Financial mechanisms and instruments	Goals	Selection of Applications	Form of government support	Practice of application in the Russian Arctic	Viable areas of support for SAP-Arctic*	Potential of using for the purposes of SAP-Arctic
1.	Government financial mechanisms and instruments						
1.1	<i>Federal, regional, and agency target programs</i>	Addressing comprehensive economic, social problems and environmental problems	Decision of the Government based on substantiations of the related ministries	Direct budget financing with co-financing from regional and off-budget sources	Sub-program on the Arctic of the federal target program "World Ocean". Widely used at the regional level, low efficiency	(1), (2) (3), (4), (5)	<i>High</i>
1.2	<i>Federal directed investment program</i>	Government capital investments in the facilitation of socio-economic development of the country	Substantiations of the related ministries	Direct budget financing	In use, but without taking account of natural and environmental conditions of the regions	(1), (3) (2), (4), (5)	<i>High Average Low</i>

⁹ Averchenkov A.A. "Review and Analysis of National Financial Sources, Instruments, and Mechanisms for Implementation of SAP-Arctic", ACOPs, Moscow, May 2007 (draft)

1.3	<i>National projects</i>	Concentration of budgetary funds to implement the socio-economic policy priorities	Program activities prepared within the agency strategies for the development of related ministries	Direct budget financing	In use, but with a limited pollution abatement effect	(2),(3),(4), (1), (5)	<i>Average Low</i>
1.4	<i>Direct financing of current agency's environmental expenditures</i>	Tapping funds for implementation and financing of environmental initiatives	According to classification of environmental initiatives	Direct budget financing	Widely used to ensure statutory environmental activities	(3) (1), (2), (4), (5)	<i>Average Low</i>
1.5	<i>Regional funds for inter-budgetary transfers</i>	Effective management of financial support for budgets of different levels	Based on calculations in accordance with the Ministry of Finance methodologies	Direct budget financing	Widely used, but without account of natural conditions of the Russian Arctic areas	(1), (3),(2), (4), (5)	<i>High</i>
2	Mechanisms and instruments of public private partnership Establishing institutional preconditions for the public and private sector interaction						
2.1	<i>Concession agreements</i>	Attracting investments in the transport infrastructure projects, development of new mineral resources deposits	Agreement between the Russian Government and investors	Bilateral agreements	Used in the development of new minerals deposits; failed to incorporate requirements for rehabilitation of disturbed areas	(2) (1), (3), (4), (5)	<i>High Average Low</i>
2.2	<i>Special economic zones</i>	Encouraging the inflow of investments into	Selection of investment projects through	Direct budget financing + incentive	Has not been used in the Arctic region up to now	(3), (4) (5) (1), (2),	<i>High Average Low</i>

		the manufacturing, innovations, tourism sector, and port infrastructure	competitive bidding conducted by MEDT; the project list is approved by the Russian Government	taxation and preferential duties + non-financial incentives			
2.3	<i>Investment Fund</i>	Implementation of major infrastructure and industrial projects	Selection of investment projects through competitive bidding conducted by MEDT; the project list is approved by the Russian Government	Direct budget financing + non-financial instruments (government guarantees)	Has not been used in Russian Arctic up to now	(1), (3) (2), (4), (5)	<i>Average Low</i>
2.4	<i>Venture funds</i>	Support for the development of high-tech and innovations SME	Competitive bidding to select management companies, which will carry out investment	Investment in the authorized capital of venture funds from the federal budget	Has not been used in Russia up to now	(3) (5) (1), (2), (4),	<i>High Average Low</i>
2.5	<i>Tax exemptions and setoff of obligations</i>	Encouraging implementation of investment projects in the regions	Decisions of authorized federal and municipal bodies based on the investor intention	Reduced rates of taxes, customs duties, interest on government credits	Widely used in the mining and processing works practice	(1), (2), (3) (4), (5)	<i>High Average Low</i>

2.6	<i>Provision of long-term soft loans</i>	Encouraging implementation of projects through attractive government credits		Reduced tax rates on government credits	Used in financing NPAF projects in Archangelsk oblast	(1), (2), (3), (4), (5)	<i>Average Low</i>
2.7	Kyoto Protocol mechanisms	<i>Attracting additional financial funds to implement GHG reduction initiatives</i>		<i>Approval of projects, transfer of quota</i>	Has not been used in Russia up to now	(1), (5) (3) (2), (4)	<i>High Average Low</i>

*** List of SAP-Arctic priorities:**

- (1) preventing and addressing pollution of the coastal and marine environments caused by onshore and offshore economic activities including oil, chemical and radioactive pollution;
- (2) improving drinking water supply quality;;
- (3) conservation of biological and landscape diversity and the potential of renewable natural resources impacted by man-induced pollution;
- (4) supporting and maintaining enabling conditions for the traditional nature use of small-in numbers indigenous peoples of the North;
- (5) mitigating natural and man-induced risks at economic and social facilities due to global climate changes

Attachment 2

Preliminary Identification and Description of Hot Spots

Ranking of “hot spots” on a basis of their prioritization

Hot Spot	Current (existing) impact	Potential impact
Norilsk	38,0	42,0
Nikel	37,2	41,2
Zapolyarny	37,2	41,2
Monchegorsk	31,4	34,4
Kayerkan	31,0	33,0
Vorkuta	30,4	34,4
Murmansk	29,2	32,2
Talnakh	27,8	29,8
<i>Kola Bay.</i>	<i>26,8</i>	<i>28,8</i>
Archangelsk	26,2	29,2
Pevek	26,2	28,2
Bilibino Complex	25,8	27,8
<i>Dvina gulf</i>	<i>25,8</i>	<i>27,8</i>
Anadyr	25,4	27,4
Kirovsk	25,4	27,4
<i>Kandalaksha bay.</i>	<i>25,4</i>	<i>27,4</i>
<i>Onega Gulf</i>	<i>25,4</i>	<i>27,4</i>
<i>Ob Gulf</i>	<i>25,2</i>	<i>27,2</i>
<i>Enisey Bay.</i>	<i>25,2</i>	<i>27,2</i>
<i>Pechora Bay</i>	<i>24,4</i>	<i>26,4</i>
Olenegorsk	24,4	26,4
Kola	24,2	25,2
Urengoy oil field	24,0	26,0
Kandalaksha	23,8	25,8
Solombala	23,8	25,8
Koryazhma	23,8	25,8
Dudinka	23,8	25,8
Severodvinsk	23,6	25,6
Yamburg oil field	23,4	25,4
Inta	23,2	25,2

Yellow color – western Arctic

Green color – central Arctic

Blue color – eastern Arctic

Italic – marine waters

Attachment # 3

Brief characterization of priority hot spots and possible directions of investment projects.

Hot spot # 1. Norilsk

Title of Hot spot:	<i>Norilsk</i>
Region and impact zone:	Northern Central Siberia, Norilsk impact zone
Location and address:	Krasnoyarsk Kray (northern part), Norilsk area, forest-tundra; $\approx 69^{\circ}20'N$; $88^{\circ}10'E$
Main activity:	Mining and smelting (copper, nickel, cobalt) and heat and power generation (fossil fuel combustion)
Main contaminants:	Sulfur dioxide, heavy metals, nitric oxides, phenols, carbon monoxide, hydrogen sulfide and formaldehyde, etc.
Type of source:	Multiple point
Scale of impact:	Local: A source of severe local environmental degradation. Regional: effects on marine ecological systems are for the time being insignificant in view of remoteness of the source from the seacoast.
Nature of threat and extent:	Technological peculiarities of metallurgical production. Serious effects including: <ul style="list-style-type: none"> ➤ complete destruction of local ecosystems; ➤ denudation of forests in a zone of long-distance air transport; accumulation of pollutants in ecosystems and in local foodstuffs; ➤ transfer of pollutants over significant distances; ➤ deterioration of the health of local human population; degradation of pastures, hunting grounds and tilling lands of indigenous peoples of the North in the zone of effects of long-distance atmospheric transport ➤ deterioration of the quality of inshore sea waters of the Taimyr Peninsula; and ➤ potential influence on natural habitat of the peregrine falcon (<i>Falco peregrinus</i>). ➤ In the regions of Pyasinsky Bay and Yenisey Gulf, there is gradual accumulation of contaminants in soils with possible releases into other local environmental compartments in the case of climatic change or

	alterations in land use (<i>i.e.</i> , creation of so-called geochemical time-bombs).
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Hot spot # 2. Nikel

Title of Hot spot:	<i>Nikel (Murmansk region)</i>
Region and impact zone:	Kola peninsula, West-Kola impact zone
Location and address:	Murmansk Oblast, Pechenga area, forest-tundra. 69°23'N; 30°13' E
Main activity:	Mining and smelting of copper and nickel ores
Main contaminants:	Sulfur dioxide, heavy metals, phenols, hydrogen disulfide, petroleum products, carbon monoxide, nitrogen oxides, formaldehyde,
Type of source:	Point
Scale of impact:	Locally and regionally, crisis degree of environment degradation. Direct effects on marine ecological systems and on the territory of adjacent countries (Norway, Finland).
Nature of threat and extent:	Inefficient technology of production Ecological crisis: <ul style="list-style-type: none"> • serious degradation of local ecological systems; • complete degradation of forests; • contamination of local food (fish, berries/ mushrooms, wild game) and soils; • increased surface erosion; • long-term accumulation of toxic compounds in soils with possible discharge into local ecosystems in the case of climatic or land use changes (<i>i.e.</i>, creation of so-called geochemical time-bombs); • serious threats to health of local residents; • threats to the ecosystems of Pasvik International Nature Reserve and several nature preserves of the Murmansk Oblast and rare plant species; and • source of long-range transport of pollutants.

Hot spot # 3. Zapolyarny

Title of Hot spot:	<i>Zapolyarny (Murmansk region)</i>
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Region and impact zone:	Kola peninsula, West-Kola impact zone
Location and address:	Murmansk Oblast, Pechenga area, forest-tundra; 69°25'N; 30°45'E
Main activity:	Mining and smelting of copper and nickel ores
Main contaminants:	Heavy metals, sulphur dioxide, oxides of nitrogen, carbon monoxide, hydrogen sulfide, phenols, formaldehyde and organic matter, etc.
Type of source:	Point
Scale of impact:	Crisis degree of ecological degradation on local and regional (the Arctic region) scales. Potential effects on marine ecological systems and on the territory of adjacent states (Norway, Finland).
Nature of threat and extent:	Inefficient technology of production Ecological crisis. Total degradation of local ecological systems; complete degradation of forests; contamination of local foods (fish, berries/ mushrooms, wild game) and soils; ground disturbance; increased surface erosion; gradual accumulation of toxic compounds in soils with possible releases into local ecosystems in the case of climatic or land-use changes (<i>i.e.</i> , the formation of so-called geochemical time-bombs in soils); increased human morbidity; and threats to the ecosystems of the Pasvik International Nature Reserve, several wildlife nature reserves of the Murmansk Oblast and rare plant species.

Hot spot # 4. Monchegorsk

Title of Hot spot:	<i>Monchegorsk</i>
Region and impact zone:	Kola peninsula, Central Kola impact zone
Location and address:	Murmansk Oblast, Monchegorsk administrative territory, northern taiga; 67° 07'N; 32°20'E
Main activity:	Mining and smelting of copper, nickel, chromium, and rare metal ores. Main source of pollution is "Severonikel" metallurgical combine of JSC "Kola Mining & Metallurgical Company", housing and public utilities
Main contaminants:	Sulphur dioxide, nitric oxides, carbon oxides, benzo(a)pyrene, hydrogen fluoride, heavy metals, dust,

	etc.
Type of source:	Point
Scale of impact:	Crisis degree of environmental degradation on local and regional (Russian Arctic) scales. Direct effects on marine ecosystems are improbable.
Nature of threat and extent:	Inefficient technology of production Ecological conditions - crisis. Complete destruction of local ecological systems within a radius of 3 km; shrinkage of forests; contamination of water of Lakes Imandra and Komsomolskoye and others; physical damage to soils and landscapes causing extensive erosion of soil cover; contamination of local foods (dangerous levels of contamination are being registered in wild vegetation and products of local farms); source of long-distance transport of atmospheric pollutants; contamination of the eastern part of the Lapland Biosphere Reserve; and increased morbidity rates among the human population. Gradual accumulation of toxic compounds in soils with possible releases into local ecosystems in the case of climatic or land-use changes (<i>i.e.</i> , formation of so-called geochemical time-bombs in soils). There is also a possibility of negative influences on a rare species <i>Haliaeetus albicilla</i> (IUCN).

Hot spot # 5: Kayerkan

Title of Hot spot:	Kayerkan
Region and impact zone:	Northern Central Siberia, Norilsk impact zone
Location and address:	Krasnoyarsk Kray (northern part), Norilsk area, catchment basin of the River Yenisey near its mouth and lake-river system of Pyasino, forest tundra in valleys and tundra in watersheds; 69° 20'N; 87°40'E Kayerkan is a part of Norisk municipality located 20 km west of Norisk
Main activity:	Mineral resource industry (mining of coal). Oil depot. There is a set of mining enterprises of the Polar Division of MMC Norilsk Nickel, mainly coal and non-ore cycles and corresponding auxiliary enterprises. Extraction of limestone, gypsum and anhydrite in "Kolargon" mines and strip mining of coal. Coal opencasts, tailings dam of Nadezhdinsky metallurgical plant. Airport "Alykel" is

	located at watershed area and partially in basin of the river Dudinka, right tributary of the river Yenisey.
Main contaminants:	Sulfur dioxide, nitrogen oxides, carbon monoxide, organic matter, dust, etc.
Type of source:	Point
Scale of impact:	Locally, crisis degree of environmental degradation. Direct effects upon marine ecosystems are improbable.
Nature of threat and extent:	Physical damage to soils and vegetative cover due to increased erosion of soils; contamination of surface waters; heightened morbidity among human populations; and gradual accumulation of toxic compounds in soils with possible releases into local ecosystems in the case of climatic or land use changes (<i>i.e.</i> , creation of so-called geochemical time-bombs).

Hot Spot # 6: Vorkuta

Title of Hot spot:	<i>Vorkuta</i>
Region and impact zone:	North-eastern part of the European Territory of Russia, Vorkuta impact zone
Location and address:	Republic of Komi, Vorkuta area, southern tundra; 67°35'N; 64°10'E
Main activity:	Mineral resources industry (coal extraction), fossil fuel heat and power generation, transport
Main contaminants:	Dioxides of sulfur and nitrogen, carbon monoxide, hydrogen sulfides, methane, benzo(a)pyrene, formaldehyde, heavy metals, hydrocarbons, dust, and others..
Type of source:	Multiple point
Scale of impact:	Locally, crisis degree of environmental degradation. Some regional impacts but influence on marine ecosystems is improbable.
Nature of threat and extent:	Physical disruption of local ecosystems including thermoerosion; accumulation of contaminants in ecosystems; deterioration of quality of surface waters and local foods; increased morbidity among the human population; gradual accumulation of toxic compounds in soils with potential releases into local ecosystems in the case of climatic or land use changes (<i>i.e.</i> , formation of so-called soil-geochemical time-bombs in tailings disposal areas); and negative influences on nature reserves and relics (there are eight of them in the zone of influence).

Hot Spot # 7: Murmansk

Title of Hot spot:	<i>Murmansk</i>
Region and impact zone:	Kola Peninsula, Murmansk impact zone
Location and address:	Shore of the Kola Gulf, sparse northern taiga and forest-taiga; 69° 00'N; 33°10'E
Main activity:	Large maritime port and transport centre, manufacturing industry, heat and fossil-fueled power generation. Murmansk HPP of Kolaenergy, OJSC Murmansk Shipping Company, FSUE Murmansk Sea Fishing Port, Murmanskvodokanal, and others, transport.

Main contaminants:	Organic matter, heavy metals, petroleum, oxides of nitrogen and sulfur, carbon oxides, surfactants, phenols.
Type of source:	Multiple Point
Scale of impact:	Locally and regionally, stressful degree of environmental degradation. Contamination of waters and bottom sediments of the Kola Gulf.
Nature of threat and extent:	Insufficient wastewater and waste gases treatment. Reduced biodiversity, loss of quality of seafood through contamination, disruption of fish spawning areas, accumulation of radionuclides in bottom sediments of the Kola Gulf, contamination of wild vegetation, heightened morbidity among the human population, reduced recreation potential and degradation of forests.

Hot Spot # 8: Talnakh

Title of Hot spot:	<i>Talnakh</i>
Region and impact zone:	North Central Siberia, Norilsk impact zone
Location and address:	Krasnoyarsk Kray (northern part), Norilsk area, catchment basin of the River Pyasina in its mouth section, forest-tundra; $\approx 69^{\circ}30'N; 88^{\circ}15'E$. Talnakh is a part of Norilsk municipality located 24 km north to Norilsk
Main activity:	Mineral resource industry (extraction of copper, nickel, rare metals).
Main contaminants:	Sulfur dioxide, heavy metals, nitrogen oxides, phenols, carbon monoxide, hydrogen sulfide and dust
Type of source:	Multiple Point
Scale of impact:	Local, direct impact on marine ecosystems is improbable.
Nature of threat and extent:	Threat to local ecosystems; contamination of surface waters; physical damage to soils and land resulting in extensive erosion of soil cover; contamination of local natural foods (contamination of wild vegetation and fish is at a dangerous level for human consumption); heightened morbidity among local human populations; and gradual accumulation of toxic compounds in soils with potential releases into the local ecosystems in the case of climatic or land use changes (<i>i.e.</i> , creation of so-called geochemical time-bombs).

Hot Spot # 9: Kola Bay

Title of Hot spot:	<i>Kola Bay</i>
Region and impact zone:	Gulf in Barents Sea (Murmansk shore). West-Kola impact zone
Location and address:	Murmansk Oblast, Kola Peninsula, Kola Bay of Barents Sea; 69°25'N;33°10'E. Kola Bay is located in south-western part of Barents Sea north of European part of Russia. Total area of Kola Bay is equal to 10,000 sq.km.
Main activity:	Shipping, harbor facilities, communal activities, fleet bases, and fisheries. Negative impact to environment is related to activities of industrial and communal wastewater of cities (Murmansk, Severomorsk, Kola and others) and settlements on a coastal zone, activities of fleets, transfer of pollutants by air, with surface waters and marine currents
Main contaminants:	Oil hydrocarbons, heavy metals, phenols, pesticides, detergents, organic compounds, nitrogen compounds and phosphates. Radionuclides transported in association with river sediments and other contaminants introduced through long distance atmospheric transport
Type of source:	Regional contamination of marine ecosystems and transboundary transport of pollutants in arctic surface circulation in the direction of Alaska.
Scale of impact:	Area
Nature of threat and extent:	Contamination of marine ecosystems; contamination of seafood resources; decreased biodiversity; possible influence on fisheries productivity of Bank cod, polar cod, Asian smelt, flatfish and capelin, the invertebrates northern shrimp, Kamchatka crab and Irish scallop and algal species laminaria, phukoids and anfeltsia; and influence on marine mammals. Sunk ships, wastewater discharge. Potential threat of radioactive contamination in a case of accident at nuclear waste storage areas and ships with nuclear reactors.

Hot spot # 10: Arkhangelsk

Title of Hot spot:	<i>Arkhangelsk</i>
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Region and impact zone:	Northern part of European Russia, the Arkhangelsk impact zone, high degree of environmental impact
Location and address:	Arkhangelsk Oblast, delta of the Northern Dvina River, northern taiga; 64°30'N, 40°40'E
Main activity:	Transport centre, ship repair, timber industry, construction industry, thermal and electrical generating plants and municipal activities.
Main contaminants:	Sulfur dioxide, nitrogen oxides, carbon monoxide, dust, furfurool, methylmercaptane and others
Type of source:	Multiple Point
Scale of impact:	Local, stressful degree of environment degradation. Contamination of the waters of the White Sea, accumulation of contaminants in bottom sediments, disturbance of White Sea ecosystems.
Nature of threat and extent:	Sanitary wastewater discharge, inefficient wastewater treatment facilities. Contamination of freshwater, seawater, bottom sediments and local foods including seafood; decreased fishery output and decreased aquacultural potential; decreased recreational potential; and increased morbidity among the human population. Negative effects on historical and cultural memorials and reserves. Influence on the natural habitats of some rare species is possible (<i>e.g.</i> , <i>Corallorhiza trifida</i> , <i>Dactylorhiza traunsteineri</i> , <i>D. fuchsii</i> , <i>Listera cordata</i> , (International Agreement)).

Hot spot # 11: Pevek

Title of Hot spot:	<i>Pevek</i>
Region and impact zone:	Northern Far East, West Chukotka impact zone
Location and address:	Chukchi Autonomous Okrug, Ust-Chaunsky area, coast of Chaun Bay of the East Siberian Sea, tundra; ~69° 44'N; 172°42'E
Main activity:	Transport, heat and power generation (coal-burning), construction industry and municipal activities.
Main contaminants:	Sulfur dioxide, nitrogen oxides, carbon monoxide, dust, petroleum products, organic compounds and heavy metals
Type of source:	Point

Scale of impact:	Local, localised contamination of ecosystems of the East Siberian Sea with a bearable degree of environmental degradation.
Nature of threat and extent:	Chaunsk CHP is located in a residential area and does not have organized sanitary protection zone. Waste gases treatment installations are outdated and do not provide with necessary treatment of waste gases. Internal marine waters are impacted by wastewater from municipal enterprise "Chulotkommunkhoz" and Chaunsk CHP. Disturbance of local ecological systems. Deterioration of conditions for commercial and subsistence hunting and fishing of the indigenous peoples of the North and contamination of surface waters.

Hot spot # 12: Bilibino complex

Title of Hot spot:	<i>Bilibino complex</i>
Region and impact zone:	Northern Far East, West-Chukchi impact zone
Location and address:	Chukchi Autonomous Okrug, the Bilibino area, valley of the river B.Keperveem, sparse northern taiga; 68°10'N; 166°26'E
Main activity:	Mineral resource industry (predominantly gold mining), nuclear power energy, housing maintenance and utilities
Main contaminants:	Sulfur dioxide, nitrogen oxides, carbon monoxide, potentially – spent nuclear fuel
Type of source:	Multiple point
Scale of impact:	Local, a stressful degree of environmental degradation. Effects on marine ecological systems are improbable.
Nature of threat and extent:	Inefficient mining technologies, sanitary wastewater discharge. Long impact of pollutants resulted in strong modification of environment up to total degradation of tundra ecosystems..

Hot spot # 13: Dvina Bay

Title of Hot spot:	<i>Dvina Bay (Dvinsky zaliv)</i>
Region and impact zone:	Bay in White Sea, Arkhangelsk impact area
Location and address:	Dvina Bay is located in south-eastern part of the White Sea in north of European part of Russia.

Main activity:	Pulp and paper and timber industries, transport, communal activities
Main contaminants:	Oil hydrocarbons, heavy metals, phenols, pesticides, detergents, nitrogen compounds, lignosulfonates, phosphates, chlorides, dust and organic compounds. Also, radionuclides transported in association with river flow and sediments and other contaminants introduced through long distance atmospheric transport from industrial areas.
Type of source:	Area. 124 enterprises located in catchments area of Northern Dvina contaminate the Dvina Bay by 30 polluting substances.
Scale of impact:	Regional contamination of marine ecosystems and transboundary transport of pollutants in arctic surface circulation in the direction of Alaska
Nature of threat and extent:	Pollution of marine ecosystems by communal wastewater and industrial wastewater which are not enough treated; contamination of seafood; decreased biodiversity; possible influence on fisheries productivity; adverse effects on traditional uses of marine resources by indigenous people; and influence on marine mammals including Greenland seal, ringed seal and beluga

Hot spot # 14: Anadyr

Title of Hot spot:	<i>Anadyr</i>
Region and impact zone:	North-west of Chukotka, East-Chukchi impact zone
Location and address:	Chukchi AO, Anadyr municipality, basin of river Anadyr, coastal area of Anadyr Bay of Bering Sea, tundra, 64° 47' N and 174° 34' W
Main activity:	Mining industry (gold, coal), transport center (airport, sea port), CHP
Main contaminants:	Communal wastewater, off-gases of CHP
Type of source:	Multiple point
Scale of impact:	Local
Nature of threat and extent:	Inefficient treatment of wastewater and off-gases. Internal marine and surface waters are receivers of non-treated wastewater and, as result, quality of near-coast waters on hydrochemical and biological indices decreased. Decreased level of groundwater and their contamination due to

	mining of coal in shafts.
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Hot spot # 15: Kirovsk

Title of Hot spot:	Kirovsk
Region and impact zone:	Kola Peninsula, Central Kola impact zone
Location and address:	Murmansk Oblast, Kirovsky area, northern taiga; 67°42'N;33°40'E
Main activity:	Ore mining and dressing by the Joint-stock company Apatit using open-cast mining and creating tailings dumps.
Main contaminants:	Dust, heavy metals, strontium, aluminum, benzo(a)pyrene, flotation agents; oxides of nitrogen and sulfur, carbon monoxide, phosphates
Type of source:	Multiple point
Scale of impact:	Local and regional (Murmansk Oblast). High degree of environmental degradation physical damage, contamination of local ecosystems and decreased biodiversity. Effects on the marine environment are improbable
Nature of threat and extent:	Inefficient technologies of mining and concentration of ores, wastewater discharge without treatment, heavy transport works. Contamination of local ecological systems; surface waters, local foods (freshwater fish, wild vegetation); physical damage to soils and landscapes; degradation of mountain forests; effects on the health of the local human population; threatened rare species reduced recreational potential of Hibiny (low rate of tourist business); and increased consequences of natural events such as mudflows and avalanches.

Hot spot # 16: Kandalaksha Bay

Title of Hot spot:	<i>Kandalaksha Bay</i>
Region and impact zone:	Murmansk region and Republic of Karelia. Central Kola impact zone.
Location and address:	Murmansk Oblast and Republic of Karelia, Kandalaksha Bay of the White Sea
Main activity:	Shipping, harbor facilities, communal activities, fisheries, pulp and paper mills

Main contaminants:	Oil hydrocarbons, heavy metals, phenols, pesticides, detergents, organic compounds, nitrogen compounds, phosphates and chlorides. Also particulate matter and other contaminants introduced through river and long-range atmospheric transport.
Type of source:	Area
Scale of impact:	Regional contamination of marine ecosystems
Nature of threat and extent:	Contamination of marine ecosystems; contamination of seafood resources; decreased biodiversity; possible influence on fisheries productivity; and effects on marine mammals

Hot spot # 17: Onega Bay

Title of Hot spot:	<i>Onega Bay</i>
Region and impact zone:	Bay in the White Sea. Onega Bay Impact zone
Location and address:	Republic of Karelia and Arkhangelsk Oblast, Onega Bay in the White Sea. Onega Bay is located in southern part of the White Sea at the north of the European territory of the Russian Federation. Total square of the Onega Bay is 1,000 sq. km.
Main activity:	Shipping, community activities and services, fisheries, hydrolysis plant
Main contaminants:	Oil hydrocarbons, heavy metals (compound of iron, copper and zinc), heavily oxidizing organic matters
Type of source:	Area
Scale of impact:	Local/Regional contamination of marine ecosystems
Nature of threat and extent:	Discharge of communal and industrial wastewater, marine and river shipping. Contamination of marine ecosystems; contamination of seafood; decreased biodiversity; possible influence on fisheries productivity;

Hot spot # 18: Ob Gulf

Title of Hot spot:	<i>Ob Gulf</i>
Region and impact zone:	Lower-Ob impact zone
Location and address:	Yamal-Nenets Autonomous Okrug, Ob Gulf of the Kara Sea Ob Gulf is located between 66°17' N and 71°44' N.

Main activity:	Shipping, harbor facilities, oil and gas extraction, forestry, agriculture, communal activities, traditional trades of indigenous peoples. Transportation of oil and gas products in Ob gulf and adjacent districts, as well as in basins of OB, Pur and Nadym.
Main contaminants:	Oil hydrocarbons, heavy metals, phenols, pesticides, detergents, nitrogen compounds, phosphates and organic compounds introduced through river transport and long-range atmospheric transport
Type of source:	Area
Scale of impact:	Local/Regional contamination of marine ecosystems and transboundary transport of contaminants in arctic surface circulation in the direction of Alaska.
Nature of threat and extent:	Contamination of marine ecosystems; contamination of seafood; decreased biodiversity; possible influence on fisheries productivity and health of marine mammals; and decreased livelihood of indigenous peoples.

Hot spot # 19: Yenisey Bay

Title of Hot spot:	<i>Yenisey Bay</i>
Region and impact zone:	North of Middle Siberia, Yenisey impact zone
Location and address:	Dolgan-Nenets Autonomous Okrug, Yenisey Bay of the Kara Sea
Main activity:	Shipping, harbor facilities, oil and gas extraction, mining of polymetallic ores, metallurgy, forestry, agriculture, communal activities, traditional activities of indigenous peoples.
Main contaminants:	Heavy metals, oil products, phenols, radionuclides
Type of source:	Area
Scale of impact:	Regional contamination of marine ecosystems and transboundary transport of contaminants in arctic surface circulation in the direction of Alaska.
Nature of threat and extent:	Contamination of marine ecosystems; contamination of seafood; decreased biodiversity; possible influence on fisheries productivity; adverse effects on marine mammals; and decreased livelihood of indigenous peoples.

Hot spot # 20: Pechora Gulf

Title of Hot spot:	<i>Pechora Gulf</i>
Region and impact zone:	North-east of European part of Russia, Timan-Pechora impact zone
Location and address:	Nenets Autonomous Okrug, Pechora Gulf of the Pechora Sea, total area 2,000 sq.km.
Main activity:	Shipping, harbor facilities, oil and gas extraction, forestry, fisheries, agriculture, communal activities, traditional trades of indigenous peoples.
Main contaminants:	Oil hydrocarbons, heavy metals, phenols, pesticides, detergents, nitrogen compounds, phosphates and organic compounds potentially introduced through atmospheric transport from oilfield accidents
Type of source:	Area
Scale of impact:	Regional contamination of marine ecosystems
Nature of threat and extent:	Discharge of communal and industrial wastewater, marine shipping. Contamination of marine ecosystems; contamination of seafood; decreased biodiversity; possible influence on fisheries of Pechora white fish, pelyad, vendace and salmonids, including Pechora salmon, and on the invertebrates northern shrimps, etc.; and possible influence on marine mammals.

Hot spot # 21: Olenegorsk

Title of Hot spot:	<i>Olenegorsk</i>
Region and impact zone:	Kola Peninsula, Central Kola impact zone
Location and address:	Murmansk Oblast, Olenegorsk administrative territory, northern taiga; 68°08'N; 33°15'E
Main activity:	Mineral resource industry (iron ore mining), heavy engineering industry.
Main contaminants:	Heavy metals, sulfur dioxide, nitric oxides, ammonium nitrogen, phenols, dust, organic compounds, and petroleum products.
Type of source:	Multiple Point

Scale of impact:	Local/regional. Crisis degree of environmental degradation on local and regional scales (<i>i.e.</i> , in Murmansk Oblast). Influence on marine ecosystems is improbable
Nature of threat and extent:	Inappropriate waste storage, discharge of insufficiently treated industrial and communal wastewater Contamination of local ecosystems, surface waters; physical disturbance of soils and landscapes; increased child morbidity; and reduced recreational potential.

Hot spot # 22: Kola

Title of Hot spot:	<i>Kola</i>
Region and impact zone:	North of Kola Peninsula, West-Kola impact zone
Location and address:	Murmansk Oblast, Kola area, Kola Gulf, sparse northern taiga and forest-tundra; 68°58'N; 33°15'E
Main activity:	Manufacturing industry, heat-and-power generation, and poultry farming.
Main contaminants:	Organic matter, petroleum products, phenols, heavy metals and sulfur dioxide
Type of source:	Point
Scale of impact:	Locally, stressful degree of environmental degradation. Contamination of freshwater and marine areas, effects on marine ecosystems of the Kola Gulf, deterioration of the quality of seafood
Nature of threat and extent:	discharge of insufficiently treated wastewater Accumulation of pollutants in marine ecosystems including local seafood, physical disruption of soils and vegetative cover and reduced recreational potential

Hot spot # 23: Urengoy gas field

Title of Hot spot:	<i>Urengoy gas field</i>
Region and impact zone:	West Siberia, Lower-Ob impact area
Location and address:	Tyumen Oblast, Central part of Yamal-Nenets Autonomous Okrug, basin of the Nadym River, left bank of the river Pur, northern taiga; coordinates of center of oil field are 66°03'N; 77°20'E. Opened in 1968. Total area 3,000

	sq.m.
Main activity:	Extraction and enrichment of natural hydrocarbons
Main contaminants:	Organic matter, petroleum products, oxides of nitrogen, heavy metals, chlorine
Type of source:	Multiple Point
Scale of impact:	Local/regional, Possible contamination of waters of the Ob Gulf of the Kara Sea due to the transport of pollutants down river systems; a bearable degree of environmental degradation
Nature of threat and extent:	Inefficient technologies, breach of regulations. Physical disturbance and contamination of ecosystems in the regions inhabited by indigenous peoples of the North; reduced quality of reindeer pastures, hunting and fishing grounds.

Hot spot # 24: Kandalaksha

Title of Hot spot:	<i>Kandalaksha</i>
Region and impact zone:	Kola Peninsula, Central Kola impact zone
Location and address:	Murmansk Oblast, Kandalaksha administrative territory, White Sea coast, northern taiga; 67° 07'N; 32°20'E
Main activity:	Metallurgical production (aluminum), transport centre, machine building and metalworking
Main contaminants:	Sulfur dioxide, carbon monoxide, benzo(a)pyrene, hydrofluoride, heavy metals, dust, petroleum products, aluminum, organic matter, etc.
Type of source:	Multiple Point
Scale of impact:	Local/Regional. Stressful degree of environmental degradation on local and regional scales (<i>i.e.</i> , in the Russian part of the Arctic). Direct effects upon marine ecosystems of the White Sea.
Nature of threat and extent:	Inefficient treatment of off-gases and wastewater of industrial, transport and communal enterprises. Contamination of marine and land ecological systems and surface waters; physical damage to soils and landscapes; deterioration of forests; damage to recreational and commercial fishery resources; deteriorating quality of

	seafood; and reductions in biodiversity. The natural habitats of a rare species (<i>e.g.</i> , <i>Haliaeetus albicilla</i>) (IUCN) are being threatened. There is a threat of extinction of rare species of flora and fauna of the Kandalaksha Natural Reserve and Dendrology Park. Natural wildlife refuges are being negatively influenced. Increased incidence of morbidity among children
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Hot spot # 25: Solombala

Title of Hot spot:	<i>Solombala</i>
Region and impact zone:	Northern European Territory of Russia, Arkhangelsk impact zone
Location and address:	Arkhangelsk Oblast, Primorsky area, suburb of Arkhangelsk northern taiga; 64°35'N;40°45'E
Main activity:	Pulp and paper industry (sulphate technology), timber industry.
Main contaminants:	Dust, hydrogen sulfide, sulfur dioxide, compounds of nitrogen, carbon bisulfide, lignosulphates, methyl mercaptanes, tannins, heavy metals, phenols, formaldehyde, furfural, methanol and petroleum products.
Type of source:	Point
Scale of impact:	Locally and regionally, a stressful degree of environmental degradation. Effects on ecological systems of the White Sea.
Nature of threat and extent:	Inefficient technologies, insufficient treatment of emissions and discharges. Contamination of air, water, land ecological systems and local foods; increased human morbidity; and threats to rare species including <i>Corallorhiza trifida</i> , <i>Dactylorhiza traunsteineri</i> , <i>D. fuchsii</i> , <i>Listera cordata</i> (International Agreement).

Hot spot # 26: Koryazhma

Title of Hot spot:	<i>Koryazhma</i>
Region and impact zone:	North European part of Russia, Kotlas impact zone
Location and address:	Arkhangelsk Oblast, Kotlas area, northern taiga; 61°10' N; 46°40' E

Main activity:	Pulp and paper industry (Kotlas pulp and paper mills), forestry, chemical industry (paint and varnish, phenol resins)
Main contaminants:	Dust, hydrogen sulfide, sulfur dioxide, compounds of nitrogen, carbon bisulfide, lignosulphates, methyl mercaptanes, tannin, heavy metals, phenols, formaldehyde, oil products, furfural, dioxine like toxic substances - POPs
Type of source:	Multiple Point
Scale of impact:	Local, and regional, possible effects on the ecological systems of the White Sea, stressful degree of environmental degradation.
Nature of threat and extent:	Inefficient technologies, insufficient treatment of emissions and discharges. Contamination of air, waters, land ecological systems and local foods.

Hot spot # 27: Dudinka

Title of Hot spot:	<i>Dudinka</i>
Region and impact zone:	Northern Central Siberia, Low-Yenisey impact zone
Location and address:	Dolgan-Nenets Autonomous Okrug, the mouth of the River Yenisey, forest tundra; 69° 25'N; 86°10'E
Main activity:	Transport, food processing industry, housing and municipal activities.
Main contaminants:	Sulfur dioxide, nitrogen compounds, carbon monoxide, organic matter, heavy metals and petroleum products.
Type of source:	Point
Scale of impact:	Locally, stressful degree of environment degradation. Potential transport of contaminated water into the marine environment of the Yenisey Gulf.
Nature of threat and extent:	Insufficient treatment of communal wastewater. Contamination of surface waters and local foods (fish); physical disturbance of the territories inhabited by indigenous peoples of the North; reduced recreational potential.

Hot spot # 28: Severodvinsk

Title of Hot spot:	<i>Severodvinsk</i>
Region and impact zone:	Northern part of European Russia, Arkhangelsk impact zone
Location and address:	Arkhangelsk Oblast, Primorsky area, coast of the White Sea, northern taiga; 64°35'N;39°40'E
Main activity:	Machine construction industry, ship repair, fossil-fuel electrical power generation and heat supply systems
Main contaminants:	Formaldehyde, dioxides of sulfur and nitrogen, carbon monoxide, organic matter, petroleum products, heavy metals and benzo(a)pyrene
Type of source:	Multiple Point
Scale of impact:	Locally, stressful degree of environmental degradation. Contamination of the ecosystems of the White Sea.
Nature of threat and extent:	Discharge of insufficiently treated wastewater. Contamination of air, freshwater, seawater and local foods including seafood; and possible threats to rare species including <i>Corallorhiza trifida</i> , <i>Dactylorhiza traunsteineri</i> , <i>D. fuchsii</i> , <i>Listera cordata</i> (International Agreement).

Hot spot # 29: Yamburg gas field

Title of Hot spot:	<i>Yamburg gas field</i>
Region and impact zone:	North of West Siberia, Tazovsky Peninsula, Lower Ob impact zone
Location and address:	Tyumen Oblast, Yamal-Nenets Autonomous Okrug, central part of the Tazovsky Peninsula, Yamburgsky oil and gas field, a tundra zone; 68°04'N; 75°54'E South-western part of the gas field is located at distance less than 10 km from Ob gulf. Gas field is intersected by the rivers Khadutta, Poelovaya flowing to Tas Gulf located at distance 30-50 km from the gas field.
Main activity:	Extraction and production of gas and gas condensate (138.9 bln m ³ in 2005, gas losses during extraction – 0.3 bln m ³).
Main contaminants:	Natural gas, petroleum products, oil emulsion, phenols, incineration products (including PAH), phenols, formation and produced waters, surfactants, drilling fluids and sludges, etc.

Type of source:	Multiple Point
Scale of impact:	Local/regional. Heightened ecological danger, regional scale of impact (formation of regional areas of contamination with localised impact zones of high and extremely high concentration of pollutants); chronic effects on marine ecological systems; and environmental degradation and loss of natural resources (pastures, berry-fields, moors).
Nature of threat and extent:	Breach of regulations of environmental protection during extraction Accumulation of contaminants in the environment (<i>i.e.</i> , formation of so-called chemical type bombs). Effects will be delayed but probably unfavorable with the possibility of catastrophic effects on the environment. The most likely early consequences are: reductions in reindeer livestock because of decreasing natural vegetation and disruption of the traditional way of life and health of indigenous peoples (Nenets). Later consequences may be expected in the form of chronic pressures upon marine ecosystems.

Hot spot # 30: Inta

Title of Hot spot:	<i>Inta</i>
Region and impact zone:	North-eastern part of the European part of Russia, Vorkuta impact zone
Location and address:	Northern part of Republic of Komi, Inta area at the bank of the river Bolshaya Inta, sparse northern taiga; 66°03'N; 60°10'E
Main activity:	Mining industry (extraction and enrichment of coal), heat and power generation from fossil fuels, transport activities.
Main contaminants:	Dust, sulfur dioxide, nitrogen oxides, heavy metals, hydrocarbons of petroleum origin, organic compounds, phenols, formaldehyde and surfactants, etc.
Type of source:	Multiple Point
Scale of impact:	Locally, stressful degree of environmental degradation. Probability of influence on marine ecosystems is low.
Nature of threat and extent:	Discharge and emissions of insufficiently treated wastewater and off-gases, storage of solid wastes. Physical disturbance of soils and terrain; contamination of surface and ground waters and ecological systems;

	<p>deterioration of cropping, hunting and fishing resources; gradual accumulation of toxic compounds in soils with potential releases into local ecosystems in the case of climatic or land use changes (<i>i.e.</i>, formation of so-called soil-geochemical time-bombs in tailings disposal areas); and adverse influences on registered nature reserves (the Yugyd-Va National Park).</p>
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Attachment # 4

Specific Investment Projects for which PINS will be Developed

Lot # 1 (western sector of Russian Arctic including Murmansk region and Frantz-Joseph archipelago)

Hot Spot	Current (existing) impact	Potential impact
Nikel	37,2	41,2
Zapolyarny	37,2	41,2
Monchegorsk	31,4	34,4
Murmansk	29,2	32,2
<i>Kola Bay.</i>	<i>26,8</i>	<i>28,8</i>
Kirovsk	25,4	27,4
Olenegorsk	24,4	26,4
Kola	24,2	25,2

1. Cleaning of hazardous substances from the bottom sediments of the Kola Fjord – the project is based on Phase I of this project implemented as pilot project within GEF/UNEP project.

Contact person:

Mr. Nikolay Bichuk, Head of Committee on Natural Resources and Environmental Protection of Murmansk region administration. Post address: 75 Lenin prospect, Murmansk 183006 Russia. tel.:(8152) 68-6801, (8152) 68-6802; fax: (8152) 68-6802 e-mail: obl.admin@murman.ru

2. Environmental Remediation of the Decommissioned Military Bases on Franz Josef Land Archipelago – development of full complex of work on reclamation of polluted areas of Franz Josef Land Archipelago – the project will be follow-up of demonstration project and will be based on information obtained during 1st Phase of this project implementation as well as on other information collected by the Project Office.

Contact persons:

Mr. Yuri Sychev (Non-commercial organization Fund of Polar Investigations "Polar Fund", tel.:+7 495

Mrs. Tatyana Dolgoshchelova – Head of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Archangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: eco@dvinaland.ru; dtu@dvinaland.ru

3. Cleaner production in housing and public utilities of Murmansk (treatment of toxic wastes and construction of landfill for household wastes).

Contact person:

Mr. Nikolay Bichuk, Head of Committee on Natural Resources and Environmental Protection of Murmansk region administration. Post address: 75 Lenin prospect, Murmansk 183006

Russia. tel.:(8152) 68-6801, (8152) 68-6802; fax: (8152) 68-6802 e-mail:
obl.admin@murman.ru; Department of housing and public utilities of Murmansk

4. Construction of landfill for household and industrial wastes in Apatity-Kirovsk region (1st stage)

Contact person:

Mr. Nikolay Bichuk, Head of Committee on Natural Resources and Environmental Protection of Murmansk region administration. Post address: 75 Lenin prospect, Murmansk 183006 Russia. tel.:(8152) 68-6801, (8152) 68-6802; fax: (8152) 68-6802 e-mail:
obl.admin@murman.ru
Administration of town of Apatity, 1 Lenin street, Apatity, Murmansk region, 184209 Russia

5. Cleaning of pit waters of former Lovosero mining and concentration complex from fluorides, Karnasut, Umbosero production site.

Contact person:

Mr. Nikolay Bichuk, Head of Committee on Natural Resources and Environmental Protection of Murmansk region administration. Post address: 75 Lenin prospect, Murmansk 183006 Russia. tel.:(8152) 68-6801, (8152) 68-6802; fax: (8152) 68-6802 e-mail:
obl.admin@murman.ru

6. Securing of dusty surfaces of tailing pond of JSC "Olkon"

Contact person:

Mr. Nikolay Bichuk, Head of Committee on Natural Resources and Environmental Protection of Murmansk region administration. Post address: 75 Lenin prospect, Murmansk 183006 Russia. tel.:(8152) 68-6801, (8152) 68-6802; fax: (8152) 68-6802 e-mail:
obl.admin@murman.ru
JSC "Olenegorsk mining and metallurgical company" (JSC "Olkon"), Olenegorsk, Murmansk region

7. Construction of coastal or floating stations for receiving of bilge water, sludge, wastewater, gash, etc. in ports

Contact person:

Mr. Nikolay Bichuk, Head of Committee on Natural Resources and Environmental Protection of Murmansk region administration. Post address: 75 Lenin prospect, Murmansk 183006 Russia. tel.:(8152) 68-6801, (8152) 68-6802; fax: (8152) 68-6802 e-mail:
obl.admin@murman.ru

JSC company "Murmansk shipping corporation

Lot # 2
(central sector of Russian Arctic incl. Arkhangelsk region, Nenets AO, Republic of Komi, Yamal Nenets AO, northern territories of Krasnoyarsk krai (Taimyr (Dolgano-Nenets AO))

Hot Spot	Current (existing) impact	Potential impact
Norilsk	38,0	42,0
Kayerkan	31,0	33,0
Vorkuta	30,4	34,4
Talnakh	27,8	29,8
Arkhangelsk	26,2	29,2
<i>Dvina gulf</i>	25,8	27,8
<i>Kandalaksha bay.</i>	25,4	27,4
<i>Onega Gulf</i>	25,4	27,4
<i>Ob Gulf</i>	25,2	27,2
<i>Enisey Bay.</i>	25,2	27,2
<i>Pechora Bay</i>	24,4	26,4
Urengoy oil field	24,0	26,0
Kandalaksha	23,8	25,8
Solombala	23,8	25,8
Koryazhma	23,8	25,8
Dudinka	23,8	25,8
Severodvinsk	23,6	25,6
Yamburg oil field	23,4	25,4
Inta	23,2	25,2

1. Construction of UV drinking water treatment facility at 4th relift pumping plant, UV disinfection wastewater treatment facility of Yagry island and wastewater treatment plant for treatment of production wastewater and storm water at state enterprise “Zvezdochka” in city of Severodvinsk

Contact person:

Mrs. Tatyana Dolgoshchelova – Head of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Arkhangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: eco@dvinaland.ru; dtu@dvinaland.ru

2. Reducing the mercury pollution at Arkhangelsk region territory

Contact person:

Mrs. Tatyana Dolgoshchelova – Head of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Arkhangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: eco@dvinaland.ru; dtu@dvinaland.ru

3. Providing sustainable work of water intake works on the river Vaga in town Shenkurenensk of Arkhangelsk region.

Contact person:

Mrs. Tatyana Dolgoshchelova – Head of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Arkhangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: eco@dvinaland.ru; dtu@dvinaland.ru

Ms. E.Anan'ina, Head of department of water related activities of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Arkhangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: Kaletjuk@dvinaland.ru; : eco@dvinaland.ru

4. Addressing of past environmental damage from decommissioned un-owned oil wells in Nenets AO

Contact person:

5. Preventing the emergency situations at well # 9 of Kumzha gas-condensate deposit in Nenets region

Contact person: to be defined

6. Wastewater treatment plant in city of Salekhard (Yamal-Nenets okrug)

Contact person: to be defined

7. Construction of wastewater treatment plants in settlements of Arkhangelsk region.

Contact person:

Mrs. Tatyana Dolgoshchelova – Head of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Arkhangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: eco@dvinaland.ru; dtu@dvinaland.ru

8. Construction of waste treatment plant in municipality "Mirny" (Arkhangelsk region)

Contact person:

Mrs. Tatyana Dolgoshchelova – Head of Committee on Environment of Arkhangelsk region administration. Post address: 49 Troitsky prospect, Arkhangelsk, 163004 Russia tel : 8 (8182) 21 55 19; Fax: 207163; e-mail: eco@dvinaland.ru; dtu@dvinaland.ru

9. Construction of wastewater treatment plants in settlements along rivers Ob, Pur and Taz

Contact person: To be defined

10. Modernisation of boilers at CHP-2 in Vorkuta by transmission to turbulent type burning of coal.

Contact person: To be defined

Lot # 3
Eastern sector of Russian Arctic –Republic of Sakha (Yakutiya and Chukchi AO)

Hot Spot	Current (existing) impact	Potential impact
Pevek	26,2	28,2
Bilibino Complex	25,8	27,8
Anadyr	25,4	27,4

1. Environmental Remediation of the Decommissioned Military Bases on Novosibirsk islands (Kotel’ny island and Bolshoy Lyakjovsky island)

Contact persons:

Ministry of Nature Protection of Republic Sakha (Yakutiya)

2. Wastewater treatment facilities for the town of Anadyr in Chukchi autonomous okrug

Contact persons:

Department of Natural Resources and Environmental Protection of Chukchi region

3. Improvement of water supply system of town of Pevek in Chukchi autonomous okrug

Contact persons:

Department of Natural Resources and Environmental Protection of Chukchi region

4. Environmental Remediation of the Decommissioned Military Bases on Vrangeli island

Contact persons:

Mr. V. Shcherbonosov, Head of Department of state environmental expert review and issuing permits of Chukchi Department of Federal Service for Supervision of Natural Resource Usage

5. Environmentally friendly conservation of hydraulic engineering structures at decommissioned mining enterprises “Kulargold”, “Deputatsky” and Lebedinskaya gold recovery plant. there is a brief proposal of Ministry of Nature Protection of Republic Sakha (Yakutiya) on this subject

Contact persons:

Ministry of Nature Protection of Republic Sakha (Yakutiya)

6. Addressing of past environmental damage of used drums with residues of oil products in model area of Chukchi AO.

Contact persons:

Department of Natural Resources and Environmental Protection of Chukchi region

Attachment 5

Preliminary Investment Project Characterization

Report Information Requirements and Format

I. Project category according to: *(select and name the category)*

- 1 Environmentally safe operation of nuclear installations
- 2 Handling and storage of radioactive waste
- 3 Oil pollution
- 4 Chemical pollution
- 5 Solid wastes
- 6 Reduction of energy consumption and energy saving
- 7 Reduction of industrial gas emissions
- 8 Land degradation and biodiversity loss caused by human activities
- 9 Preservation of freshwater resources, incl. improvement of drinking water supply
- 10 Prevention of marine pollution
- 11 Improvement in the state of the environment and lifestyle of the indigenous and traditional populations

II. Project Title:

III. Project Developer/Owner: *Identification of organization(s) (legal entity) proposing the project and those who would implement it, inclusive of a brief description of who they are, place of business, evidence of interest, experience relevant to the proposed project, financial status and key contacts for purposes of further co-operation.*

IV. Project Description: *Overall description of the proposed investment project providing, as available, its general physical scope, technical basis, proposed schedule, possible implementation arrangements, cost information, and expected impacts/outcomes in environmental and social terms (including linkages to global environmental priorities). Available preparation documentation and other materials that would form the basis of further preparation should be itemized.*

V. Legal or any other Restrictions for Russian and Foreign Investors: *Identify any possible legal and regulatory barriers and requirements, and/or other external factors that may apply to the proposed investment project. Provide an assessment of the prospects for practically addressing these*

barriers, requirements and factors in subsequent phases of project preparation and implementation.

VI. Project Support by State Authorities (Federal, Regional and Local) and linkage to Priorities: *As may be applicable indicate any formal support that exist from state authorities and the linkages that can be made to state policies and programs in terms of the priority that may be attached by authorities to the proposed project.*

VII. Existing Project Financing and Co-financing: *Identify the level of financial commitment available for the proposed project from its developer (owner) in terms of equity investment or external commercial borrowing, and what other sources of financing that would potentially be applicable from state and international sources.*

VIII. Assessment of Potential Risks and Justification of Selection: *Provide a brief assessment of potential risks (technical, environmental, social, implementation, financial/economic), the practicality of preparing a PINS, and the rationale for recommending the project in comparison to any alternatives that might reasonably exist.*